

Appl. No. 10/710,541
Amdt. dated October 25, 2007
Reply to Office action of August 06, 2007

Amendments to the Drawings:

The attached drawing sheet includes changes made to Fig. 3. The drawing sheet, which includes Fig. 3, replaces the original sheet including Fig. 3.

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Attachment: Replacement Sheet

1 page

REMARKS/ARGUMENTS

1. Amendments to the Specification

The specification paragraph [0028] has been amended to correct a typographical error. No new matter is introduced.

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2. Amendments to the Drawings

As stated in specification paragraph 0031, the ICSI detector 160 has two correlators 130, 150 and a comparator 170. Therefore, the reference numeral 150, missing in the original Fig. 3, is added to the amended Fig. 3. Additionally, in the original Fig. 3, the functional block
10 “Comparator” is erroneously labeled by the reference numeral 60 which should be changed to the reference numeral 170. No new matter is introduced.

3. Claim Rejections

35 U.S.C. 103

15 Claims 1-3, 5-6, 8, 10-12, 14-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awater et al. US 2005/0152317 (hereinafter Awater) in view of Gummadi et al. US 7,136,436 (hereinafter Gummadi). Applicant respectfully traverses the rejections made by the Examiner for at least the reasons hereinafter.

Regarding claims 1 and 10, neither Awater nor Gummadi discloses the following
20 limitation: “computing a second correlation value representing the correlation between the at least one first signal and at least one of third signals of a third symbol next to the first symbol”, as recited in the claims 1 and 10 of the instant application. It should be noted that a symbol next to the first symbol is received after receiving the first symbol, and a symbol previous to a first symbol is received before the first symbol.

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Awater doesn't explicitly disclose that the third signal is placed next to the first signal (not previous to first symbol) for calculating second correlation value, as admitted by the

examiner in the Office action dated 08/06/2007. Awater discloses that a first correlation value and a second correlation value are obtained from a first accumulator enabled by start1_en and a second accumulator enabled by start2_en, respectively. The first accumulator and second accumulator both accumulate samples correlated from a symbol and another symbol

5 **previous** to the symbol. The first accumulator enabled by start1_en signal accumulates samples 1 through 10, however, the second accumulator enabled by start2_en signal different from start1_en signal accumulates samples 9 through 18 (paragraph 0062, Equ. 6, and Equ. 5, Awater).

Gummedi discloses that correlation can be performed between the received signal
10 currently being received and portions of the signal that were received previously (column 5, lines 58-67, Gummedi). Therefore, the applicant asserts that a person having ordinary skill in the art at the time the invention cannot obtain a second correlation value representing the correlation between a first symbol and a third symbol next to the first symbol through the teachings of Awater in view of Gummedi.

15 Furthermore, applicant's claims 1 and 10 defines that at least one first signal is transmitted via a first sub-carrier and the at least one second signal is transmitted via a second sub-carrier adjacent to the first sub-carrier. (*emphasis added*) In the Office action dated 08/06/2007, Examiner states that this feature is anticipated by Awater (Fig. 9; paragraph 0084). The applicant disagrees. The applicant points out that Awater merely
20 discloses that the first 16 sub-carriers samples and second 16 sub-carriers samples are correlated to form a correlation output, but fails to teach or suggest, implicitly or explicitly, that two symbols to be correlated belong to two **adjacent** sub-carriers.

In addition, the method and apparatus of applicant's claims 1 and 10 further teach comparing the first correlation value to the second correlation value and adjusting the timing
25 of the boundary according to the comparing result, wherein first correlation value representing the correlation between at least one of first signals of a first symbol and at least one of second signals of a second symbol previous to the first symbol and second correlation value representing the correlation between the at least one first signal and at

least one of third signals of a third symbol **next to the first symbol**. (*emphasis added*) In light of above statements, the combined teaching of Awater and Gummadi neither teaches nor suggests the claimed first correlation value representing the correlation between at least one of first signals of a first symbol and at least one of second signals of a second symbol **previous to the first symbol** and the claimed second correlation value representing the correlation between at least one first signal and at least one third symbol of a third symbol **next to the first symbol**, where at least one first signal is transmitted via a first sub-carrier and the at least one second signal is transmitted via a second sub-carrier **adjacent** to the first sub-carrier. (*emphasis added*). As applicant's correlation values to be processed are not anticipated by the combined teaching of the cited prior art, applicant therefore asserts that the claimed limitations directed to comparing the first correlation value to the second correlation value and adjusting the timing of the boundary according to the comparing result are not taught nor suggested by Awater in view of Gummadi.

In the Office action dated 08/06/2007, Examiner states that the claimed feature "adjusting the timing of the boundary" is anticipated by Awater (Fig. 4; paragraph 0034). The applicant asserts that the teachings of Awater are misinterpreted by Examiner. Note is made by the applicant that Awater discloses a controller (element 120 shown in Awater Fig. 4) receiving input from the "detection blocks" rather than "boundary detection blocks" (paragraph 0034). The inputs and outputs of controller 120 are all listed in tables 1 and 2 on page 3 of Awater's disclosure, respectively. For convenient, the tables 1 and 2 on page 3 of Awater's disclosure are listed below.

TABLE 1 Controller Inputs		TABLE 2 Controller outputs	
Lable	Description	Lable	Description
c11b	Correlation metric for 802.11b	detect_11b	A metric indicating the presence of an 802.11b preamble

Df_11b	Coarse estimate for TX/RX frequency offset for 802.11b signals	detect_11a	A metric indicating the presence of an 802.11a preamble
p11b	Power metric for 802.11b	peak_11b	Pass through from interference locator
peak_11b	Index of 802.11b signal peak	df_11a	Pass through from interference locator
c11a	Correlation metric for 802.11a	df_11b	Pass through from interference locator
P11a	Power metric for 802.11b	interference_location	Pass through from interference locator
Cw_present	Indicates presence of a narrowband interference signal that is not 802.11a or 802.11b	noise_estimates[N]	Pass through from interference locator
pwr	Power estimates for each antenna	scaling_factors[N]	Pass through from interference locator
interference_location	Frequency location of detected interference (if any)		
df_11a	Coarse estimate for TX/RX frequency offset for 802.11a signals		
Noise_estimates[N]	Estimates (per antenna) of noise level		
scaling_factors[N]	Estimates (per		

	antenna) of signal level; used for adjusting gain of antennas		
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From the relations between the inputs and the outputs listed on Awater's tables, the controller 120 doesn't perform the function of adjusting the timing of the boundary. The comparing result of two correlation values, c11b or c11a, is inputted to the controller,
5 however, there is no output signal representing that the timing of the boundary is adjusted. Additionally, upon careful review of Awater's disclosure, the applicant finds no description pertinent to adjusting the timing of the boundary. Therefore, the applicant asserts the claimed feature "adjusting the timing of the boundary" is not anticipated by Awater.

For at least the forgoing reasons, Claims 1 and 10 should be found patentable over
10 the cited references, and the rejections based thereon should be withdrawn accordingly. Claims 2-9 and 11-18 are dependent upon Claims 1 and 10 respectively, and should be allowed if Claims 1 and 10 are found allowable.

Conclusion

15 For the reasons as described above, Applicant believes that Claims 1 and 10 are allowable over the cited references. Insofar as Claims 1 and 10 are allowable, Claims 2-9 and Claims 11-18 all dependent upon Claims 1 and 10 including every claimed element thereof, are also allowable on their own merits in claiming additional limitations not included in Claims 1 and 10.

20 Withdrawal of the rejections and allowance of the pending claims, are respectfully requested. Applicant has made every effort to place the present application in condition for allowance. It is therefore earnestly requested that the present application, as a whole, receive favorable consideration and that all of the claims be allowed in their present form.

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Should the Examiner feel that further discussion of the application and the Amendment is conducive to prosecution and allowance thereof, please do not hesitate to contact the undersigned at the address and telephone listed below.

5 Sincerely yours,



Date: 10.25.2007

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

10 Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C.
15 is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)